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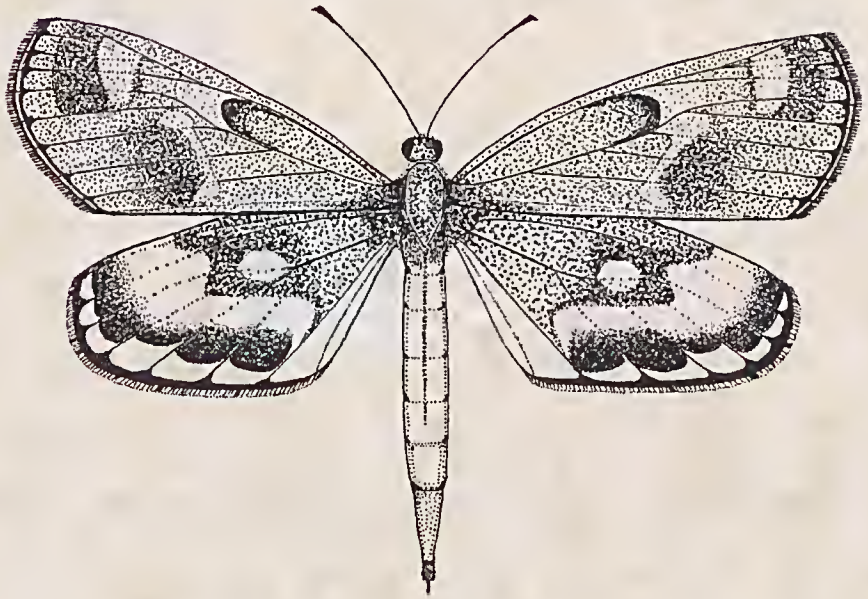

News Bulletin of The Entomological Society of Victoria Inc.

THE ENTOMOLOGICAL SOCIETY OF VICTORIA (Inc)

MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

MUSEUM VICTORIA
27 APR 2006

OBJECTIVES

The aims of the Society are:

(a) to stimulate the scientific study and discussion of all aspects of entomology,
(b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
(c) to compile a comprehensive list of all Victorian insect species,
(d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

MEETINGS

The Society's meetings are held at the 'Discovery Centre', Lower Ground Floor, Museum Victoria, Carlton Gardens, Melway reference Map 43 K5 at 8 p.m. on the third Friday of even months, with the exception of the December meeting which is held on the second Friday. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

SUBSCRIPTIONS

Ordinary Member	$20.00 (overseas members $22)
Country Member	$16.00 (Over 100 km from GPO Melbourne)
Student Member	$12.00
Associate Member	$ 5.00 (No News Bulletin)

Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

LIFE MEMBERS: P. Carwardine, Dr. R. Field, D. Holmes, Dr. T. New, Dr. K. Walker.

Cover design by Alan Hyman.

Cover illustration: The pale Sun Moth, *Synemon selene* Klug, is an endangered species restricted to perennial grassland dominated by *Austrodanthonia* in Western Victoria. It is now extinct in SA, and was presumed extinct in Vic. until its rediscovery, in February 1991, by the late Frank Noelker and Fabian Douglas. The Victorian Populations are parthenogenetic with all specimens comprising females, a most unusual trait in the Castniidae. Illustration by Michael F. Braby.

MINUTES OF THE GENERAL MEETING 17 FEBRUARY 2006

Meeting opened at 8.05 pm

Present:	P. Carwardine, D. Dobrosak, K. Dunn, I. Endersby, D. Stewart, R. Vagi, K. Walker, G. Weeks, R. Field.
Visitors:	M. Endersby, P. Lillywhite, S. Curle, J. Richards
Apologies:	P. Marriott, T. Morton
Minutes:	Minutes of the 19 August General Meeting [*Vic. Ent.* 36(1): 1-2] were accepted. M: G. Weeks, S: I. Endersby.

General business:

- Ken Gopal was elected to Membership
- Membership applications was received from Alan Cooper and Grant Kusef.
- Peter Carwardine showed a cup moth that he bred from *Angophora* sp.
- Ian Endersby reported that during the Golden Sun Moth survey at Craigieburn Grasslands in December about 20 observers saw 1200 male and 2 female moths. Environmental surveys have located at least half a dozen new populations over the last two seasons ranging from Epping to Deer Park.

Treasurer's Report:
The Treasurer reported the account balances to be: General Account $7,583; Le Souëf Account $4,461.

Editor's Report:
The Editor advised that a new printer was used for the current issue. Some minor difficulties will procedures were experienced which contributed to the later than usual mail-out. As the price has increased other printers will be investigated.

Speaker: Dr. Ross Field gave a presentation on 'The Biology of Some Unique Butterflies from Eastern Victoria'

Ross spent the last 6 years on a program of photographing the immature and adult stages of Victorian butterflies and their host plants. The information will be used to update and enhance the information provided on Museum Victoria's bioinformatics website (www.museum.vic.gov.au/bioinformatics/)

Ross provided the following summary of Victorian butterfly species that are restricted to eastern Victorian. The eastern Victorian boundary is defined as 'east of Melbourne' (approximately longitude 145°).

	Victorian species	Eastern Victorian species
Hesperiidae	40	15
Papilionidae	4	1
Pieridae	13	3
Nymphalidae	29	7
Lycaenidae	40	8
Total	**126**	**34**

Photographs of the immature and adults stages of the following species were shown. Ross provided host plant information and distribution maps with histograms showing flight periods. Much of the information provided was new and had not been seen before.

The species shown were:

Hesperiidae

Netrocoryne *repanda repanda*
Badamia exclamationis
Anisynta dominula drachmophora
Hesperilla mastersi mastersi
Hesperilla picta
Mesodina lualyzia (2 records west of Melbourne)
Oreisplanus munionga munionga
Telicota eurychlora
Toxidia andersoni
Toxidia doubledayi
Toxidia parvulus
Toxidia peron
Suniana lascivia
Trapezites iacchoides
Trapezites praxedes

Papilionidae

Graphium macleayanus macleayanus (one record west of Melbourne near Woodend)

Pieridae

Delias nigrina
Delias nysa nysa
Appias paulina ega (one record in Mildura)

Nymphalidae

Tirumala hamata hamata
Ypthima arctous arctous
Heteronympha mirifica
Hypocysta euphemia
Oreixenica correae
Oreixenica orichora orichora
Oreixenica latialis latialis

Lycaenidae

Acrodipsas cuprea
Acrodipsas aurata
Candalides consimilis goodongi
Candalides absimilis
Candalides xanthospilos
Thesclinesthes sulpitius sulpitius
Neolucia hobartensis hobartensis
Neolucia mathewi

Ross also brought a potted native nettle that he found is a larval host of the Australian Admiral, *Vanessa itea*.

Thanks were extended to Ross for a very informative talk.

Meeting closed at 9.12 pm.

MINUTES OF THE COUNCILLOR'S MEETING 17 MARCH 2006

Meeting opened at 5.05 pm

Present: P. Carwardine, D. Dobrosak, I. Endersby, P. Marriott

Apologies: D. Stewart, K. Walker

Correspondence:
Australian Journal of Entomology Vol 45, Part1, 2006

Treasurer's Report:

The Audit of the Societies accounts is not complete. A report will be given at the AGM.
Le Souëf award was discussed. Currently all of the income from $9,000 held in term deposits is allocated to the Le Souëf award. $70 goes to Science Talent Quest and $250 per annum for the award. No award was made in 2005.

Editor's Report:
The Editor advised that a new printer is still being sought.

General Business:

- The cost of a new printer were discussed. Peter Carwardine obtained quotes for printing the *Vic. Ent.* that ranged from $162.40 to $319.

- Wings and Stings. Ian Endersby reported that he has been able to scan Wings and Stings and convert them to searchable PDF files. However he had not yet been able to match the old typewriter font so the copies are not facsimiles of the originals. Further investigation is required.

- Le Souëf Award: It was agreed to advertise the award more widely amongst the entomological community. No applications were received in 2005.

- Program for future meetings: Council discussed the program for the remainder of the year. August will be the Members' Night, October will be a visit or excursion and December will be an opportunity for members and visitors to show their areas of research as well as an end of year supper.

Meeting closed 6:10pm

Aggregations of Collembola

Ian D. Endersby

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Collembola can often be observed forming quite large bluish-grey patches of individuals on water surfaces, on pools or in containers that have caught rainwater. The group seems to minimise its perimeter by some surface tension effect giving a roughly circular outline. If the group is broken up it forms smaller patches which eventually merge into one large one.

Such an agglomeration of Collembola on a water surface was observed under the microscope. Stragglers are drawn towards the group; those apparently walking away move backwards until they merge and those not walking at all move forwards, sidewards or backwards as though on a conveyor belt. Individuals accelerate as they approach the group and a larger group seems to attract the smaller one. There is constant movement in the group as the individuals crawl over each other or spring away, up to ten Collembolan lengths, these are then pulled back by the force that forms the minimum surface energy group. There seemed to be no mating activity and, as mating is by pickup of a spermatophore, this is to be expected.

A mite within the group was moved away and it travelled slowly back to contact the edge again. It possibly moved slower than a Collembolan. A small piece of cork was placed a little away from the group and it also moved slowly until it was in contact. Two or three times during its journey a floating Collembolan passed by and there was a quick movement uniting the two. The Collembolan sprang away and the cork resumed its slow trip while the Collembolan moved in the same direction but quicker.

There were a couple of globular sminthurid-like Collembola amongst the preponderance of linear hypogastrurid species.

Experiments

An explanation for the mechanism of aggregation is that Collembola have a hydrophobic cuticle which affects the surface tension of the water surface so they will agglomerate in the same manner that globules of oil will sit on a water surface. One alternative to this is that polar or electrostatic forces are operating. Each of these suggestions can be tested

A drop of household detergent caused the agglomeration to pile up three of four Collembolans high and the perimeter of the group diminished. Stray specimens on the water surface seemed dead, some lying on their side. The group was broken in half and it formed two smaller groups which did not merge. The only movement was from Collembola that were on top of others; all those on the water surface had stopped moving and many were on their sides. Some dead ones away from the group moved as though the attractive force was still working but many did not. The surface was stirred thoroughly and a number of small groupings formed. They all had some still active Collembola standing on top of dead ones but the groups did not merge.

To disrupt any electrostatic forces two wires connected to 2 AA dry cell batteries in series were placed either side of an agglomeration. To isolate the voltage effects other probes were also tested, an unconnected wire and a wooden splinter. If hand-held the inert probes caused the Collembola to move away, otherwise there was no movement. It would appear that the effect could have been due to transmitted hand tremor.

There were a number of responses to the electrodes when hand held: the group was attracted to the negative terminal; the group was driven from between the wires; the group was attracted to the positive terminal. With the wires braced against the sides of the petri dish, no net movement occurred.

A pincer attack on two opposite edge of the group with the two electrodes caused the group to split into two. However, this could also be achieved by a pincer attack with two wooden splinters so it was possibly caused by a mechanical wave action.

Thought experiment

Dr Frans Janssens has a website reference to "Aggregations of Collembola on a temporary pool from Belgium". He advised me that the publication is in Dutch was a short note to emphasise that the aggregation of large amounts of Collembola is a more common phenomenon than expected at first sight.

He later wrote:

"I have been doing some 'thought experiments' (cf Einstein ...): assuming the weight of Collembola specimens on a water surface causes the surface to turn into a concave (hollow) surface. This concave surface will cause other specimens that join the agglomeration at the edges to glide to the centre of the agglomeration. I have noticed that *Podura aquatica* individuals were not able to walk onto the concave surface of the water film formed at contact of water and glass in aquaria (meniscus effect). They always glide back away from the glass. Once Collembola specimens have joined the agglomeration it will not be possible for them to escape from it by walking away from it; they will always glide back to the center, due to the hollow curvature of the water surface. Only by jumping can they escape.

"So the agglomeration on water surface behaves as a kind of trap. It should be possible to calculate some kind of maximum size of the agglomeration, taking into account size/weight of a specimen, number of specimens that join the agglomerations from the edges in time, number of specimens that escape from the agglomeration by jumping away in time, etc. It is clear that the maximum size of an agglomeration is the result of a dynamic behaviour of individuals with respect to the agglomeration itself."

However I find it difficult to explain how, when there are two or more separate aggregations, they can surmount the "ridge" in the water surface that separates them if they are in separate "hollows".

Effect of Ecdysis

A batch of Collembola was collected from a bucket under the overflow of a rainwater tank. After the disturbance they aggregated into three small circular masses and eventually combined into one. Three days later they were in one small patch with lots of others scattered randomly across the surface. The ones in the patch were alive but there was no movement from many of the scattered ones. There were lots of pale brown flecks on the water surface amongst the Collembola. Under the microscope they were seen to be exuviae and some individuals were in the process of shedding. After four days all of the Collembola were scattered randomly on the water surface; no signs of any aggregations.

Further Experiments

A colony of Collembola was taken from a bucket with rainwater spouting overflow and placed in a 90 mm. petri dish to provide a photographic record of the stages and dimensions of agglomeration. The photographs were photocopied, a set of orthogonal axes drawn on each dish, and each clump was circumscribed with a circle of known diameter that just included the boundaries of the clump. x-y coordinates were measured to the nearest millimetre for the centre of each clump.

While the camera was being set up the group had already formed four clumps of diameter 12, 14, 14 and 15 mm. Within three minutes the four clumps had agglomerated into one cross-shaped group where the outer edges of the four could still be discerned. The centre of this clump is approximately the average of the coordinates of the four clumps from which it was formed.

The group was stirred up with a wooden stick and the timing re-commenced; the Collembola were not totally dispersed but comprised a number of clots which acted as nuclei for agglomeration. In less than a minute four major groups had formed with four very small outliers and a few individuals. Possible precursors to these clumps could be seen in the non-random distribution after stirring. Clump 1 was nearly pre-formed and the nucleus for clump 4 was obvious. Collembola which formed clumps 2 and 3 consisted of about half a dozen small agglomerations. The proto-clumps had moved some distance to form these groups.

1:31 min	Clumps 2,3 and 4 have merged to a large clump and clump 1 is slightly larger
1:59 min	The two clumps have contracted slightly and moved to be in contact.
2:57 min	The two clumps have agglomerated into one elongate patch
6:14 min	The patch has contracted slightly but not changed its position. The four components can still be somewhat discerned.
15:14 min	The patch has contracted a little more but not changed its position. No residue of the four components can be seen.
18h:42 min	Four dispersed patches are remaining containing about 60% of the colony. Exuviae are present
46 hours	One small dispersed patch contains about 10% of the colony with a couple of denser clots also present. Most specimens are dispersed throughout the dish.

In summary:

1 Collembola congregate on water surfaces forming groups which seem to minimise their perimeter by some surface tension effect giving a roughly circular outline

2 Stragglers are drawn towards the group; those apparently walking away move backwards until they merge and those not walking at all move forwards, sidewards or backwards as though on a conveyor belt.

3 Other invertebrates (mites) and inanimate objects such as the piece of cork are also attracted but possibly moving slower than a Collembolan.

4 Larger groups tend to attract the smaller ones

5 A drop of household detergent caused the agglomeration to pile up three of four Collembolans high and the perimeter of the group diminished. Stray specimens on the water surface seemed dead. The group was broken in half and it formed two smaller groups which did not merge. No net movement occurred when electrodes were placed near the group.

6 Ecdysis seems to halt the ability to agglomerate.

These observations are consistent with a method of aggregation in which one particular instar of Collembola has a hydrophobic cuticle which affects the surface tension of the water surface so they will agglomerate in the same manner that globules of oil will sit on a water surface. Ecdysis seems to halt the ability and the need to agglomerate. No explanations could be found to explain why Collembola form clusters and further observations and experiments are warranted to confirm the mechanism.

Acknowledgments:

Thanks to Penny Greenslade and Frans Janssens for their interest and helpful comments.

Some New Morphological Observations in Australian Region Satyrs (Lepidoptera: Nymphalidae: Satyrinae)

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In conjunction with a DNA study of the Australian Region satyrs being undertaken by N. Wahlberg (Stockholm University), the author recently completed a cladistic analysis of the endemic Australian Region satyrs using about 60 morphological and biological attributes. Two of these attributes were notable in that they seem to have been overlooked by scientists in the past. At present, 19 endemic Australian Region satyr-genera are recognized, that are placed in the tribe Hypocystini by taxonomists.

The two unusual attributes relate to the presence or absence of a scleritised juxta in the male genitalia, and the presence or absence of vein R1 in the hindwing of the adults.

Holloway (1974), after a study of male genitalia in Australian Region satyrs, reported a juxta in the genitalia of *Dodonidia* Butler, *Erycinidia* Rothschild & Jordan, and *Pieridopsis* Rothschild & Jordan (=*Erycinidia*). The present author also saw juxta development (scleritisation) in the male genitalia of *Argyropheuga* Doubleday, *Nesoxenica* Waterhouse & Lyell, *Oreixenica* Waterhouse & Lyell, *Percnodaimon* Butler and *Tisiphone helena* Olliff. It seemed to be developed mostly in Millers's *Xenica*-series (1968), or those genera that possessed strong tibial spur development.

In the New Zealand satyrs the juxta development consisted of a slight scleritisation of the sheath below the aedeagus (fultura inferior), that was best developed in *Percnodaimon*, and least developed (essentially absent) in *Erebiola* Fereday. *Tisiphone helena* had a similar, very weakly scleritised (essentially absent), ventral juxtal sheath, while in *Nesoxenica* it was also weakly developed but sometimes the weak scleritisation extended up the sides of the anellus. In *Erycinidia* (*tenera*) and *Oreixenica* the scleritisation was very strong, forming a scleritised annular juxtal-ring around the aedeagus.

Hindwing vein R1 (Fig. 1) was noted by the present author to occur in the genera *Altiapa* Parsons, *Harsiesis* Fruhstorfer, *Hypocysta* Westwood, *Lamprolenis* Godman & Salvin and *Platypthima* Rothschild & Jordan (*Hyalodia* Jordan specimens were not available), where it formed a narrow, pre-discoidal cell. All these genera are tropical members of the Australian Hypocystini; Miller's *Hypocysta*-series (1968). The presence of R1 or a pre-discoidal cell is known to be a notable attribute in the Papilionidae, and is also reported in the Riodininae and Nymphalidae, particularly the Brassolinae and Satyrinae. It has not been reported in the Pieridae or Lycaeninae. Within the Satyrinae it is known from the Elymniini (Miller 1968), and it was also noted by the author in *Melanitis* Fabricius and *Orsotriaena* Wallengren, from the Australian Region. In this regard, the Australian endemic satyrs probably owe an evolutionary origin to the Elymniini, from a Gondwana-African origin. The presence of vein R1 is generally considered a plesiomorphic attribute, and in the Hypocystini likely to be an ancestral relict, and it helps confirm the most primitive position (Miller 1968) of the Hypocystini within the Satyritae (=Miller's Satyrinae, 1968).

References

HOLLOWAY. J.D. 1974. The endemic Satyridae (Lepidoptera: Rhopalocera) of New Caledonia. *Journ. Entom.* (B) 43(1): 89-101.

MILLER, L.D. 1968. The higher classification, phylogeny and zoogeography of the Satyridae (Lepidoptera). *Mem. Amer. Entom. Soc.* **24**: 1-174.

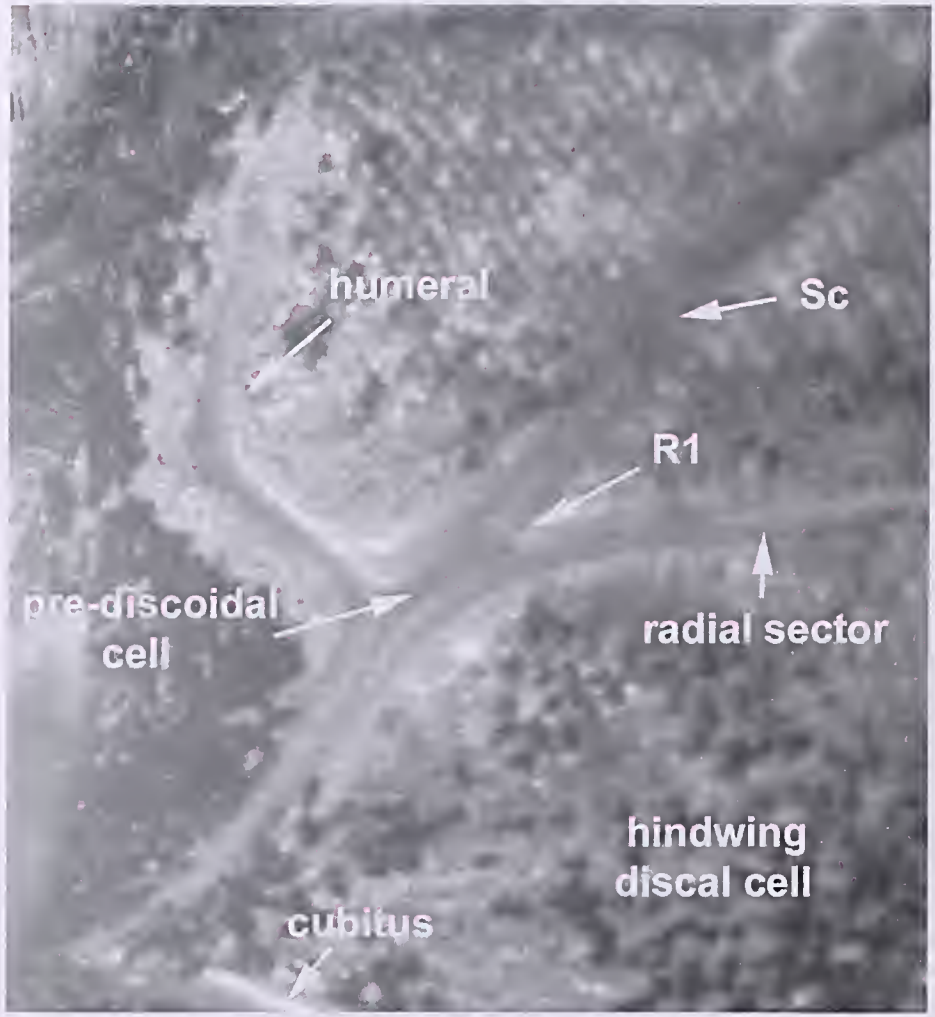

Fig 1. *Platypthima homochroa* Rothschild & Jordan; adult male hindwing underside showing vein R1 and narrow pre-discoidal cell.

Notes on garden foraging by adults of *Candalides consimilis goodingi* (Tindale) and the species' presence near Melbourne Victoria (Lycaenidae: Polyommatinae)

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Summary

In late spring of 2001 a concentration of adult *Candalides cousimilis goodingi* (Tindale) was chance-discovered in a hilltop garden adjacent Hamilton Reserve, some 4km ENE of the township of Upper Beaconsfield, Victoria. The highly localised site of mate-location (see Dunn 2002) and nectar seeking centred about a bright red-flowering *Callistemon* almost certainly *C. viminalis*, a weeping ornamental native shrub observed over several years to attract very few foraging butterfly species. This paper details the garden foraging habits of the adult *C. consimilis* during a unique and brief abundance at this site. The species localised appearance and regularity near Melbourne is also discussed.

Introduction

Candalides consimilis Waterhouse is usually a common but very localised butterfly (Braby 2004) which has a lengthy but disjunct distribution in eastern Australia (Dunn & Dunn 1991, Braby 2000). Populations at the range extremities have been named as subspecies. Over the last two decades or so I have encountered it at some 16 sites in Queensland, NSW, ACT and Victoria and these were mostly found without determined searching. In Victoria the subspecies *goodingi* (Tindale) is comparatively scarce and a sought after taxon by collectors. There are at least 29 localities known from Victoria (Dunn & Dunn database; comprising 120400 records) and of these I have collected it at six sites, half by chance encounters.

Adults of *C. consimilis goodingi* are known to perch on, and aggregate about, various flowering plants and medium sized shrubs or trees particularly those with glossy leaves. Tindale (1965), for example, mentioned observations by C.G.L. Gooding of spring-flowering *Clematis* (Ranunculaceae) attracting adults. *Clematis* is a twiner on shrubs and trees in sclerophyll forest in southern Australia, and no doubt the white flowers are attractive to this and other lycaenid species. However, Llew Gooding, a 20th Century collector in Gippsland and after whom the Victorian subspecies was named, supposed the adult association with *Clematis* as indicative of a probable larval food plant (Tindale 1965) rather than an adult foraging site – a larval host supposition tacitly doubted by nuances of Tindale's language.

It remains possible that Gooding's observation has more substantiation than supposed. Hunting (1980a) similarly reported adults associated with *Clematis*, but intuitively had the twiner's substrate shrub *Polyscias sambucifolius* (Araliaceae) then known as '*Tieghemopanax sambucifolius*' identified. This shrub was later shown to be a larval food plant in NSW (Common & Waterhouse 1981) and in central Victoria (Gullan et al. 1996 *c.f.* Dunn 1997, Braby 2000). Perhaps Gooding had observed a similar coincidental association. And, of course, there may be other larval hosts in Victoria; Atkins (1984) suggested *Lonicera* (Caprifoliaceae) as a possibility. Nonetheless, perching near foraging sites, in addition to sites of oviposition, is a common insect mate-location behaviour (Thornhill & Alcock 1983), and one I have seen male butterflies of various families do with regularity. Australian polyommatine are certainly no exception to this habit, and this paper describes the general activity of *C. consimilis* at a foraging site east of Melbourne.

Times given for activities are in Australian Eastern Standard Time, not daylight saving time. In terms of species' field identification rigour, two males were collected as vouchers and are currently in the author's private collection (KLDC). As one expert wisely penned, "Imagine trying to identify the females (and males in some cases) of *Candalides helenita*, *C. margarita*, *C. absimilis*, *C. consimilis* and *Philiris diana* without capturing them for closer examination! Even in collections, preserved specimens of these five lycaenids can be very easily confused and some may necessitate dissection" (Braby 1999: 107).

Discovery of a transient population by serendipity

The weather was sunny with a shade temperature of about 18°C on 21 November 2001 at 1440h AEST, when I chanced upon a silvery lycaenid flying rapidly north-west, about 2m above ground near Upper Beaconsfield, in the foothills of the Dandenong Ranges. It passed parallel a garden shrub of *Lantana montividensis* (Verbenaceae) where I had been watching various butterflies feeding. Based on upperside colouring and size, it was immediately recognised as a male *Candalides* of the *Holochila* subgroup, and of interest being a rare subgroup near Melbourne. By default it had to be *C. consimilis goodingi* as no other siblings occur in southern central Victoria (Dunn 1990, Dunn & Dunn 1991, Braby 2000). The male continued its flight trajectory a few more metres, then took a 90-degree left turn at the corner of the house, flying adjacent the house once again, but now in a SW direction.

My curiosity was piqued, ignoring this popular nectar source and one at which the species has been known to feed (Atkins 2001) was surprising. Indeed, this sharp directional change seemed purposively territorial rather than part of the meandering or exploratory flight of an adult that had newly arrived at a gentle summit area. A mid afternoon appearance also coincided with a time when adult perching and patrolling is a familiar activity. And, given the house's location on a broad hilltop, together with experiential knowledge that male adults of *Candalides* frequently hilltop, established territoriality seemed conclusive. Because the adult was presumably doing a routine circuitous patrol flight it could reasonably be tracked and desirably captured to confirm its identification – providing a supplementary distribution record for a species with rather few reported populations at the western end of its range in Gippsland.

Several seconds later, now some 35-40m away, it rose to ascend dense shrubbery. I thought for a moment, it might be gone forever. Here, instead, it disturbed a male of the same kind, that had been perched about 4m up on a medium sized Irish strawberry tree (*Arbutusunedo* sp.) (Figure 1). This second adult intercepted it and commenced an unmistakable polyommatine, dog-fighting altercation. I watched with surprise as the two flickering silver butterflies now some 5m above ground, aggressively inspected each other. The epicentre was above a 3m high bright red-flowering, weeping bottlebrush, almost certainly *Callistemon viminalis* (Myrtaceae), situated in front of the inspecting male's sunlit leaf perch site. Within minutes, others were recognised perched with closed wings and occasionally basking with wings almost flat on an adjacent *Rhododendron*, perhaps to maximise warmth from the midafternoon spring sunshine. Over the next 20 minutes (1440-1500h AEST) I visually distinguished at least three separate males and one female.

C. consimilis, like many other localised lycaenids seemingly does not disperse far from its natal habitat, hence it usually presents in Victoria, at the southern extremity of its range, with a patchy distribution. Several adults including a basking female suggested a localised colony or meta-population in the neighbouring woodlands. It must have established recently as none had been seen in previously seasons of regular observations (1995-2000). And, located right beside the house, it remains hard to imagine how the adults' presence could have been overlooked!

Figure 1: Garden habitat showing *Callistemon* foraging site with the *Arbutusunedo* tree, perching site behind.

Observations on adult foraging behaviour

The particular *Callistemon* individual at which adults foraged has a brief but prolific flowering period. In the garden habitat this shrub usually blossoms for a week or so in late November and most inflorescences mature simultaneously, although the occasional spike can appear at other times, with a small number present in autumn. Numerous honeybees actively foraged along the flower spikes on both observation days (21-22 Nov. 2001). The audible and visible bee presence suggested a richness of nectar and pollen on this particular bush and indicative of peak flowering. In contrast only a few honeybees and no butterflies of any species foraged at other species or cultivars of *Callistemon* shrubs that were flowering simultaneously elsewhere in the garden. Finding feeding aggregations of butterflies is not always a matter of serendipity but can be a learned experience of correlating nature's cues. I have frequently honed in on bee foraging intensity, audibly recognised by their loud buzzing as they forage amongst native shrubs such as *Leptospermum*, *Kunzea* and *Melaleuca*, as an intuitive guide to likely butterfly feeding and localised territorial activity in the heath woodlands of eastern Victoria and New South Wales.

During mid afternoon on 22 November, males would regularly descend to feed at the bottlebrush inflorescences between patrols and periods of extended perching. Both sexes fed for lengthy periods (many seconds to a minute or longer), and crawled deeply among the stamens, sequentially probing their proboscis into each calyx (Figures 2 & 3). They remained undisturbed by the honeybees flying above, landing to forage, and walking amidst them. On one occasion two males hungrily fed adjacent each other, both slowly walking between and proboscis-probing amongst the dense stamens on the same bottlebrush spikes (Figures 4 & 5). Experientially, two feeding side by side is an infrequent occurrence among butterflies of the same species, except where adults are locally prolific to permit this

observational probability – indeed, circumstantially suggestive of a large population on this occasion. In addition to nectar foraging, in an earlier report dealing with mating behaviour, I mentioned how one female *C. consimilis* "also fed at what resembled scar tissue, possibly exuding sap at the base of a calyx on the same shrub" (Dunn 2002: 5).

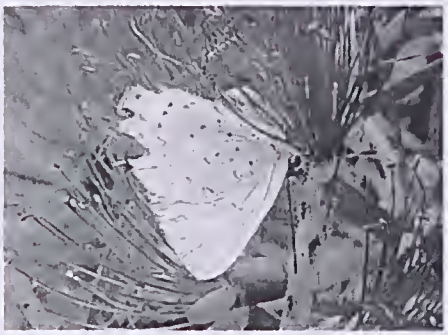

Figure 2. Male foraging at calyx base

Figure 3. Male crawling off leaf to enter flower base

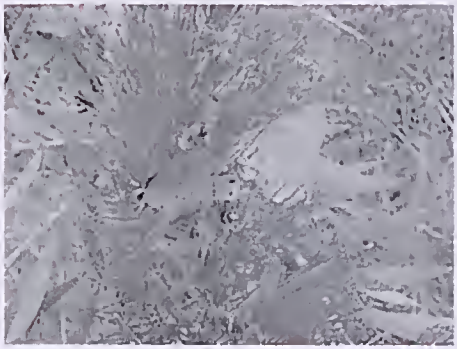

Figure 4. Two foraging males

Figure 5. Two foraging males

A week later (28 November 2001) when the opportunity for observations again arose, and weather was suitable for continuous adult activity, the bottlebrush nectar source had past its flowering peak. Only a few bees remained in attendance. No *C. consimilis* was now present in the garden, although still well within the normal flight period of this butterfly in central Victoria (Dunn & Dunn database).

Based on several seasons' observations, the *Callistemon* bush at which *C. consimilis* fed has attracted very few butterflies. On one occasion a single male of *Vanessa kershawi* foraged with *C. consimilis*, but its appearance was brief. At other times both sexes of the Caper white, *Belenois java* has utilised it during the height of their spring migration through southern Victoria. On one occasion a male *Toxidia doubledayi* had established a territory and perch site on a shrub nearby, suggesting it may have fed earlier in the day, yet its presence may have been linked to a nearby larval host rather than the nectar source. Nonetheless, I once observed another *Toxidia* sp. maintaining a territory focussed on a red-flowering *Callistemon* sp. in a Queensland garden (Dunn 1992).

Over the years at this locality most butterflies have been observed to feed at two species of *Lantana* in preference to other garden flowers. On both these spring days (21-22 Nov.), several hesperids, pierids and nymphalines fed predominantly at the light purple creeping Lantana, *Lantana montividensis*. Yet no *C. consimilis* foraged with them. Indeed, systematic observations suggested *C. consimilis* restricted its feeding to the single *Callistemon* bush, selectively ignoring many other seemingly suitable nectar sources. These included the four flowering bushes of *Lantana* spp. (involving white, pink-with-yellow, and mauve coloured flowers) and three other red or crimson flowering *Callistemon* spp. or cultivars (attracting no butterfly species). In contrast to the attracting shrub, the other *Callistemon* bushes were less regularly pruned. Pruning may be influential as it stimulates branching and can lead to more flower spikes in following seasons, enhancing attractiveness to insects. All of these flowering plants were situated within 30-50 metres of the adults' main perch sites. Only one male was seen flying past the *Lantana* and that was at the time of discovery. None perched near the *Lantana* bushes, although adults of other species did. Likewise the males of species seen feeding at *Lantana* did not feed at, or perch near, the *Callistemon*. The red flower colouration is perhaps unimportant. Elsewhere, I have usually seen *C. consimilis* foraging at the white flowers of blackberry (*Rubus* sp.). Blackberry flowers were also present farther afield (75-100metres away), but none was there either.

Adult regularity in western Gippsland

The presence of larval hosts is usually the major determiner of a species' regularity in a particular area rather than availability of adult food sources (Hill 1986). On this basis it was assumed that *C. consimilis* was breeding in the adjacent Hamilton Reserve, and would continue territoriality in the residential garden. Yet a search near the property dam and in the neighbouring flora reserve revealed no *Polyscias* shrubs, although some must have been growing close by. Moreover, the colony seemed temporary and summer passed without further sightings. Disappointingly, none was seen during the bottlebrush's peak flowering the next season in November 2002. In 2003 the season was late with peak flowering of the same bush delayed until about 4 December, at which time bee abundance climaxed marking the anticipated butterfly appearance, yet none presented. In December that year (2003) the season was poor, and few butterflies of any species frequented the summit garden area nor visited its nectar sources, including the *Lantana*, which in ideal seasons has served as a 'butterfly magnet'. No *C. consimilis* was seen in late November or early December of 2004 either, despite regular observations. On this evidence, it would seem the species presence during November 2001 was an opportunistic irregularity, a local range expansion that commenced during one or more earlier favourable seasons. Perhaps its host plants were no longer suitable for juveniles, had since died, or been removed through changes in land use on neighbouring properties. Whatever the reason, the case at hand is further evidence that butterflies are transient visitors to gardens (Newland 2003).

East of Melbourne, *C. consimilis* sometimes becomes locally abundant where a concentration of host plants has proliferated. In the 1950s a population was discovered by David Crosby at the Cement Creek Turntable (760m asl) near Warburton (Tindale 1965). I later encountered several males here, flying adjacent mountain ash forest, during two visits on 16 and 22 December 1982. In addition, during the 1990s, in the late Nigel Quick's hilltop garden (120m asl) at the end of Wallaby Court at Garfield North, near Mt Cannibal, both sexes perched on glossy-leafed *Camelia* overlooking various garden flowers. Here adults were present from late October to early December over several years (Dunn & Dunn database). More recently, none was found on a return inspection of this heath woodland habitat in early December 2004. Because of Nigel's regular observations, his temporal data provides insight into the species' regular flight period in Gippsland. Cement Creek and Garfield North were clearly 'hot spots' for this very localised species, where adults continued over many seasons. Irregularity of encounter is the more familiar experience though. Indeed, after finding a population farther east at Mount Raymond, Hunting (1980: 23) remarked that the species "completely disappeared after one week on the wing." This observation certainly agrees with my experience near Upper Beaconsfield.

In Victoria, the species usually associates with eucalypt tall open forest (WNB Quick cited in Braby 2000) and favours hilltops (Hunting 1980a, 1984) where males can be plentiful (Hunting 1980b). In open forested areas I have chanced upon adults during roadside stops to examine blackberry flowers (*Rubus*), particularly at times when they attract numerous bees - a 'trick of the trade' entrusted to me during the early 1980s, by the late Archie May, an apiarist and butterfly collector in eastern Victoria. Sites discovered by this means included populations in the Gembrook area, near Mortimer Reserve, and at Mt Burnett (alt. 240m asl). In January 1996 I also found an egg on a flower bud of Elderberry Ash (*Polyscias sambucifolius*) growing adjacent Mountain Ash forest in Sherbrooke Forest. I have never seen adults there, but in the 1970s some were taken nearby at Kallista (McEvey 1972, specimens in Museum of Victoria). In reference to its presence in the Dandenong Ranges, one writer reflected that it is "astonishing that it should have eluded the many competent entomologists who have collected there extensively" (Anon. 1973: 7). The species generally remains patchy and irregular near Melbourne, and I believe this to be the collective and contemporary experience of others.

Conclusion

I have seen this butterfly at so few localities in Victoria, yet encountering it in the garden right beside the house, an area where I have observed butterflies over many years, was indeed surprising. Its discovery was a case of serendipity, less spectacular though but still remindful of Moore's (1999) initial encounters with *Ogyris subterrestris* near Waikerie, SA. Being in 'the right place at the right time' remains an incidental hunting experience we can all relate to and one that Valentine (2005) specifically remarked upon concerning his encounters with sought after species during many years of collecting in northern Australia. Clearly, the most interesting aspects of the *C. consimilis* encounter was the species' highly localised abundance, its exclusive use of one flowering shrub for foraging, and its sudden disappearance, even though inflorescences were still present and that aging adults might be expected to linger for some period thereafter.

Acknowledgment

I would like to thank Ray Vagi, a long term member of the Entomological Society of Victoria, who told me in the 1970s of his chance find of a male *C. consimilis* in the "Gembrook area", where after random and seemingly hopeless searching, I eventually rediscovered a population in 1995. I would also like to thank the late W. Nigel B. Quick whom later showed me how to recognise its larval food plant, which enabled me to rediscover the butterfly in Sherbrooke Forest near Kallista, another forgotten site from the 1970s. Finally, I mustn't forget the late Archie May then of Noorinbee North for his hospitality, and companionship in the field, in east Gippsland in the early 1980s, and for sharing of his experiential knowledge of locating hot spots of flower-feeding butterflies in eastern Victoria.

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THE ENTOMOLOGICAL SOCIETY OF VICTORIA INC.
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE YEAR ENDED 31 DECEMBER 2005

GENERAL ACCOUNT

INCOME Subscriptions				
Member 2005			1451	
	2006+		564	2015
Institution 2005			144	
	2006		44	188
Donations				69
Sale of Back Issues				160
				2432
EXPENDITURE				
Journal Costs				
Printing		670		
Postage		425		
Covers		250	1345	
Lecture Room Hire			0	
Corporate Affairs Fees			36	
Aust Ent Soc Sub.			105	
Government taxes			4	1490
SURPLUS/(DEFICIT) FOR YEAR				942
Add Balance brought forward from 2004				2301
Less transfer to term Deposit				(2600)
Balance carried forward to 2006				643

LE SOUËF MEMORIAL FUND

INTEREST INCOME			
Treasury Corp. Victoria		126	
Commonwealth Bank Fixed Deposit		164	
Commonwealth Bank Savings Account		19	309
Less			
Award Expenditure		0	
Science Talent Search		60	60
SURPLUS/(DEFICIT) FOR YEAR			249
Add balance brought forward from 2004			1812
Balance carried forward to 2006			2061

STATEMENT OF ASSETS AT 31 DECEMBER 2005

GENERAL ACCOUNT

Bank Account	643
Term Deposit	6600
Stock of Maps	40
	7283

LE SOUËF MEMORIAL FUND

Bank Account	2061
Commonwealth Bank Fixed Deposit	2400
	4461

Auditors Report:

I report that I have audited the year 2005 accounts of the Entomological Society of Victoria, comprising the Statement of Receipts and Expenditure - General Account, the Statement of Receipts and Expenditure for the Le Souef Memorial Fund and the Statement of Assets as at 31 December 2005..

The audit procedure examined the account books and records of the Society, including bank statements, bank books and cheque books.

In my opinion the accounts are properly drawn up and accurately record the financial transactions of the Society. Further, the financial records of the Society are in accordance with applicable accounting standards.

S.J. Cowling

15 March 2006

J.C. 'ZOO' LE SOUËF MEMORIAL AWARD

Nominations for the 2006 award are now invited. Details of Background, nomination, etc. were published in the December 1992 issue of the *Victorian Entomologist* and reproduced in the February 1996 Issue of the *Victorian Entomologist*. These details are also available on the Society's web site **http://www.vicnet.net.au/~vicento** . Nominations must reach the Council at the following address by 30 September 2006:

Entomological Society of Victoria Inc.
66 Wiltonvale Avenue, Hoppers Crossing 3029

Australian Journal of Entomology Volume 44, Part 4, 2005

The Australian Entomological Society publishes the *Australian Journal of Entomology* quarterly. The Entomological Society of Victoria is an affiliated society and will, in future, publish the contents of the Journal for the wider interest of its members.

ECOLOGY

Simon Grove & Belinda Yaxley: Wildlife habitat strips and native forest ground-active beetle assemblages in plantation nodes in northeast Tasmania.

Scott P Carroll, Jenella E Loye, Hugh Dingle, Michael Mathieson & Myron P Zalucki: Ecology of *Leptocoris* Hahn (Hemiptera: Rhopalidae) soapberry bugs in Australia.

Dale H Habeck & Joseph K Balciunas: Larvae of Nymphulinae (Lepidoptera: Pyralidae) associated with *Hydrilla verticillata* (Hydrocharitaceae) in North Queensland.

Will Edwards, Jamie Seymour, Katie Pritchard & Paul Brock: Egg production across a 40-week period in the phasmid *Sipyloidea* sp. (Diapheromeridae) from a tropical rain forest, north Queensland, Australia.

SYSTEMATICS

Adam Slipinski & Wioletta Tomaszewska: Revision of the Australian Coccinellidae (Coleoptera). Part 3. Tribe Sukunahikonini.

Alice Wells: Parasitism by hydroptilid caddisflies (Trichoptera) and seven new species of Hydroptilidae from northern Queensland.

M B Malipatil & John Wainer: A revision of the genus *Catasphactes* Stål with the description of two new species (Heteroptera: Reduviidae: Harpactorinae).

Anthony D Rice: The parasitoid guild of larvae of *Chrysoplitharta agricola* Chapuis (Coleoptera: Chrysomelidae) in Tasmania. with notes on biology and a description of a new genus and species of tachinid fly.

Sam Hardwick, Matilda Harper, Gareth Houghton, Alexander La Salle, Samuel La Salle, Matthew Mullaney & John La Salle: The description of a new species of gall-inducing wasp: a learning activity for primary school students.

John T Jennings & Andrew D Austin: *Pseudofoenus caledonicus*, a new species of hyptiogastrine wasp (Hymenoptera: Gasteruptiidae) from New Caledonia

Laurence A Mound: The *Thrips orientalis* group from South-east Asia and Australia: some species identities and relationships (Thysanoptera, Thripidae).

DISEASE TRANSMISSION

Craig R Williams, Scott A Ritchie & Peter I Whelan: Potential distribution of the Asian disease vector *Culex gelidus* Theobald (Diptera: Culicidae) in Australia and New Zealand: a prediction based on climate suitability.

PEST MANAGEMENT

Stephen P Frances, Robert M Marlow, Cassie C Jansen, Raethea L Huggins & Robert D Cooper: Laboratory and field evaluation of commercial repellent formulations against mosquitoes (Diptera: Culicidae) in Queensland, Australia.

Bill Woods, Ian B Lacey, Craig A Brockway & Christine Y Johnstone: Hosts of Mediterranean fruit fly *Ceratitis capitata* (Wiedemann) (Diptera: Tephritidae) from Broome and the Broome Peninsula, Western Australia.

Yi zhong Yang, Yue shu Yu, Lu Ren, Yi dong Shao, Kun Qian & Myron P Zalucki: Possible incompatibility between transgenic cottons and parasitoids.

WEED BIOCONTROL

Robin J Adair: The biology of *Dasineura dielsi* Rübsaamen (Diptera: Cecidomyiidae) in relation to the biological control of *Acacia cyclops* (Mimosaceae) in South Africa.

Kunjithapatham Dhileepan, Mariano Treviño & Sathyamurthy Raghu: Effect of temperature on the survival of Aconophora compressa Walker (Hemiptera: Membracidae): implications for weed biocontrol.

The Imperial Hairstreak, *Jalmenus evagoras*. Larvae and pupae on Wirilda, *Acacia retinodes*

D.E.A. (Tony) Morton

I noticed several nests of all stages of the butterfly on small bushes of Wirilda *(A. retinodes)* along Forest Creek, Chewton on 18th February. There were also smaller numbers on *Acacia dealbata* and *A. mearnsii*. This particular species has not been found on Wirilda before, I believe, although Braby states that *Jalmenus icilius* uses it as a foodplant. The old pupal cases of dozens of previously emerged specimens are clearly visible on the wattles.

There is a large colony of this butterfly near Malmsbury, on the Daylesford road, from about Zig-Zag Road to the Glen Luce/Vaughan turnoff, mainly on the left. This time the foodplants are *Acacia melanoxylon* as well as *Acacia dealbata* and *A. mearnsii*.

In November 2002 and again in 2003, I found a few *Jalmenus icilius* on young *Acacia dealbata* and *A. mearnsii* saplings near Sutton Grange. Although the trees are plentiful, especially *Acacia dealbata*, I could not find them again in 2004 or 2005.

ENTOMOLOGY J. EAST

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The Society welcomes contributions of articles, papers or notes pertaining to any aspect of entomology for publication in this Bulletin. Contributions are not restricted to members but are invited from all who have an interest. Material submitted should be responsible and original. The Editor reserves the right to have articles refereed. Statements and opinions expressed are the responsibility of the respective authors and do not necessarily reflect the policies of the Society.

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Contributions may be typed on A4 paper or sent to the Hon. editor on an **IBM formatted disk in *Microsoft Word for Windows*** with an enclosed hard copy. The main text of the news bulletin is prepared in 8 point, *Book Antiqua* font. Contributions may *preferably* be E-mailed to Internet address: **suturalis@yahoo.com**

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DIARY OF COMING EVENTS

Friday 21 April 2006
Annual General Meeting and a talk on 'Bees and Flies'

Friday 19 May 2006 Council Meeting

Scientific names contained in this document are *not* intended for permanent scientific record, and are not published for the purposes of nomenclature within the meaning of the *International Code of Zoological Nomenclature*, Article 8(b). Contributions my be refereed, and authors alone are responsible for the views expressed.

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